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PTO-901 (04-02)
Approved for use through 09/30/2002. GPO: 2002 OMB: 2001

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Substance for Form 1449 (AIA/PTO)

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known

Application Number	09/945500
Filing Date	August 30, 2001
First Named Inventor	Forbes, Leonard
Group Art Unit	Unknown
Examiner Name	Unknown

Attorney Docket No: 01303.029US1

Sheet 1 of 2

US PATENT DOCUMENTS						
Examiner Initials	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	Filing Date if Appropriate
L	US-4412902	11/01/1983	Michikami, Osamu, et al	204	192	06/18/1982
	US-4780424	10/25/1988	Holler, Mark A	437	29	09/26/1987
	US-5350738	09/27/1994	Hase, Takashi, et al	505	473	11/27/1992
	US-5691230	11/25/1997	Forbes, L.	437	62	09/04/1996
	US-5801401	09/01/1998	Forbes, L.	257	77	01/29/1997
	US-5852306	12/22/1998	Forbes, Leonard	257	315	01/29/1997
	US-5981350	11/09/1999	Geusic, J. E., et al	438	388	05/29/1998
	US-5991225	11/23/1999	Forbes, L., et al	365	230.06	02/27/1998
	US-6025627	02/15/2000	Forbes, L., et al	257	321	05/29/1998
	US-6135175	10/24/2000	Gaudreault, P., et al	144	4.1	10/19/1998
	US-6141238	10/31/2000	Forbes, L., et al	365	145	08/30/1999
V	US-6153468	11/28/2000	Forbes, L., et al	438	257	05/17/1999

FOREIGN PATENT DOCUMENTS						
Examiner Initials	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	T ²

OTHER DOCUMENTS - NON PATENT LITERATURE DOCUMENTS						
Examiner Initials	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²			
L		ARYA, S., "Conduction Properties of Thin Al2O3 Films", <u>Thin Solid Films</u> , 91, (1982), pp. 363-374				
		DIPERT, B., "Flash Memory Goes Mainstream", <u>IEEE Spectrum</u> , 30, (October 1993), 48-52				
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		GRIMBOLT, J., "I. Interaction of Al Films with O2 at Low Pressures", <u>Journal of the Electrochemical Society</u> , 129(10), (1982), pp. 2368-2368				
		GRIMBOLT, J., "II. Oxidation of Al Films", <u>Journal of Electrochem Soc.: Solid-State Science and Technology</u> , (1982), pp. 2368-2372				
V		GUNDLACH, K., "Logarithmic Conductivity of Al-Al2O3-Al Tunneling Junctions				

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DATE CONSIDERED

10/03/2004

Examiner Initials: *John Daus* Submitter Form PTO-544B

• Examiner Initials are considered, whether or not claimed in conformance with MPEP 600. Draw line through claim if not in conformance and not considered. Include copy of this form with next communication to applicant. • Applicant's entire claim description (numbered) is placed in place a check mark here if English language translation is attached.

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PTO/SB/08A (10-01)

Substitute for Form 1448A PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>		Complete / Known	
		Application Number	09/945500
		Filing Date	August 30, 2001
		First Named Inventor	Forbes, Leonard
		Group Art Unit	Unknown
		Examiner Name	Unknown
		Attorney Docket No: 01303.029US1	
Sheet 2 of 2			

OTHER DOCUMENTS – NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Ctg No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
LH		Produced by Plasma and by Thermal Oxidation", <u>Surface Science</u> , 27, (1971).pp. 125-141	
		HODGES, D.A. , <u>Analysis and Design of Digital Integrated Circuits</u> , 2nd Edition, McGraw-Hill Publishing, New York, (1988).pp. 354-357	
		HURYCH, Z. "Influence of Non-Uniform Thickness of Dielectric Layers on Capacitance and Tunnel Currents", <u>Solid-State Electronics</u> , vol. 9, (1966).967-979	
		KUBASCHEWSKI, O., <u>Oxidation of Metals and Alloys</u> , Butterworths, London, (1962).pp. 53-63	
		LUAN, H., "High Technology Ta ₂ O ₅ Gate Dielectrics with $\text{Tox} \ll 10\text{A}$ ", <u>IEDM</u> , (1999).pp. 141-144	
		MASUOKA, FUJIO., "A 256K flash EEPROM using Triple Polysilicon Technology", <u>1985 IEEE International Solid-State Circuits Conference, Digest of Technical Papers</u> , (1985).168-169	
		MASUOKA, FUJIO., "A new Flash E2PROM Cell using Triple Polysilicon Technology", <u>International Electron Devices Meeting, Technical Digest</u> , (1984).464-467	
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		PASHLEY, RICHARD D. , "Flash Memories: the best of two worlds", <u>IEEE Spectrum</u> , (1989).30-33	
		POLLACK, S., "Tunneling Through Gaseous Oxidized Films of Al ₂ O ₃ ", <u>Transactions of the Metallurgical Society of AIME</u> , 233, (1965).pp. 497-501	
		SHI, Y., "Tunneling Leakage Current In Ultrathin (<4 nm) Nitride/Oxide Stack Dielectrics", <u>IEEE Electron Device Letters</u> , 19(10), (1998).pp. 388-390	
		SIMMONS, J., "Generalized Formula for the Electric Tunnel Effect between Similar Electrodes Separated by a Thin Insulating Film", <u>Journal of Applied Physics</u> , 34(6), (1963).pp. 1793-1803	
		SZE, S., <u>Physics of Semiconductor Devices</u> , Second Edition, John Wiley & Sons, New York, (1981).pp. 553-556	

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• EXAMINER: If this statement is considered, whether or not citation is in conformance with MPEP 804.01(e) (through chapter II), it is contingent and not considered. Include copy of this form with next communication to the Office. A separate brief may be filed if the Office fails to place a check mark here if English language Translation is desired.

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Information Disclosure Statement (Form 1449A/PTO-1)

Approved for use under 17 CFR 2.106. No person or entity is required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	09/945500
		Filing Date	August 30, 2001
		First Named Inventor	Forbes, Leonard
		Group Art Unit	2818
		Examiner Name	Pham, Ly
Sheet 1 of 3		Attorney Docket No: 1303.029US1	

US PATENT DOCUMENTS						
Examiner Initials	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	Filing Date if Appropriate
L	US-2001/0013621	08/01/2001	Kazuo, Nakazato	257	314	
	US-2002/0106536	08/08/2002	Lee, Jongho , et al.	428	702	02/02/2001
	US-2002/0137250	09/26/2002	Nguyen, B. , et al.	438	53	03/15/2002
	US-4,295,150	10/13/1981	Adam, Fritz	357	54	10/01/1979
	US-4,757,360	07/12/1988	Faraone, Lorenzo , et al.	257	317	07/06/1983
	US-5,042,011	08/20/1991	Casper, Stephen L., et al.	365	205	05/22/1989
	US-5,071,782	12/10/1991	Mori, Kiyoshi	437	48	06/28/1990
	US-5,073,519	12/01/1991	Rodder, Mark	438	269	
	US-5,280,205	06/18/1994	Green, Robert S., et al.	307	630	04/16/1992
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	US-5,418,389	05/23/1995	Watanabe, Y.	257	295	11/09/1993
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	US-5,498,558	03/12/1996	Kapoor, A	437	43	05/06/1994
	US-5,508,544	04/16/1996	Shah, P. L	257	316	09/27/1994
	US-5,600,592	02/04/1997	Atsumi, S. , et al.	365	185.18	05/08/1995
	US-5,618,575	04/08/1997	Peter, Gunter	427	8	04/21/1995
	US-5,619,642	04/08/1997	Nielsen, M , et al.	395	182.04	12/23/1994
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	US-5,677,867	10/14/1997	Hazani, E	365	185	06/30/1995
	US-5,880,991	03/09/1999	Hsu, L , et al.	365	182	04/14/1997
	US-5,923,056	07/13/1999	Lee, Woo-Hyeong , et al.	257	192	03/12/1998
	US-5,936,274	08/10/1999	Forbes, L. , et al	257	315	07/08/1997
	US-5,986,932	11/16/1999	Ratnakumar, K. N. , et al.	365	185.07	06/30/1997
	US-6,026,228	02/15/2000	Ibok, E , et al.	438	261	11/25/1997
	US-6,031,263	02/29/2000	Forbes, L. , et al.	257	315	07/29/1997
	US-6,069,380	05/01/2000	Chou, , et al.	257	315	
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	US-6,124,729	09/26/2000	Noble, W. P. , et al.	326	41	02/27/1998
	US-6,134,175	10/17/2000	Forbes, L. , et al.	365	230.06	08/04/1998
↓	US-6,141,248	10/31/2000	Forbes, Leonard , et al.	365	185.08	07/29/1999

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10/03/024

Information Disclosure Statement (Form 1449A/PTO-1)

• EXAMINER: Indicate if previous action(s) considered, whether or not citation is in conformance with 37 CFR 1.92. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. Applicant's unique docket designation number (if present) & applicant's place of business (if English translation is attached)

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PTO-901 (07-01-01)
Approved by the U.S. Congress on August 20, 1996
and in effect until August 20, 2001
U.S. Patent and Trademark Office U.S. DEPARTMENT OF COMMERCE
Information Disclosure Statement (77 FR 46436, 7/17/2012)

Substitute for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <small>(Use as many sheets as necessary)</small>		Computer # Known					
		Application Number	09/945500				
		Filing Date	August 30, 2001				
		First Named Inventor	Forbes, Leonard				
		Group Art Unit	2818				
		Examiner Name	Pham, Ly				
Sheet 2 of 3		Attorney Docket No: 1303.029US1					

18	US-6,143,638	11/07/2000	Forbes, L., et al.	438	587	08/20/1998
	US-6,163,049	12/19/2000	Bui, N. D.	257	321	10/13/1998
	US-6,208,164	03/27/2001	Noble, W. P., et al.	326	41	08/04/1998
	US-6,229,175	05/08/2001	Uchida, Hidetsugu	257	315	03/19/1999
	US-6,238,876	05/29/2001	Noble, W. P., et al.	438	259	02/27/1998
	US-6,248,606	06/12/2001	Forbes, Leonard, et al.	365	185.03	09/02/1999
	US-6,249,020	06/19/2001	Forbes, L., et al.	257	315	08/27/1998
	US-6,249,460	06/19/2001	Forbes, L., et al.	365	185.28	02/28/2000
	US-6,307,775	10/23/2001	Forbes, L., et al.	365	185.01	08/27/1998
	US-6,351,411	02/28/2002	Forbes, Leonard, et al.	365	182	06/12/2001
↓	US-6,424,001	07/23/2002	Forbes, L., et al.	257	315	02/09/2001

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Examiner Initials*	Foreign Document No.	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	T ⁴
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OTHER DOCUMENTS - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Case No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁴
18		AFANAS'EV, V., et al., "Electron energy barriers between (100)Si and ultrathin stacks of SiO ₂ , Al ₂ O ₃ , and ZrO ₃ and ZrO ₂ insulators", <i>Applied Physics Letters</i> , 78(20), (2001), pp. 3073-3075	
		EIERDAL, L., et al., "Interaction of oxygen with Ni(110) studied by scanning tunneling microscopy", <i>Surface Science</i> , 312, (1994), pp. 31-53	
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		GUO, X., "High Quality Ultra-thin (1.5 nm) TiO ₂ /Si3N ₄ Gate Dielectric for Deep Sub-micron CMOS Technology", <i>IEDM Technical Digest</i> , (1999), pp. 137-140	
		HODGES, D. A., et al., <i>Analysis and Design of Digital Integrated Circuits</i> , McGraw-Hill Book Company, 2nd Edition, (1988), pp. 394-396	
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↓		KUBASZEWSKI, O., et al., <i>Oxidation of Metals and Alloys</i> , Second Edition, Butterworths, London, (1962), pp. 1-3, 5, 6, 8-12, 24, 36-39	

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10/03/2004

*EXAMINER'S initial references considered, whether cited or not in conformance with MPEP 600. Draw line through claims if not in conformance and not considered. Include copy of this form with next communication to applicant. (Applicant's unique docket designation number (if any) is to place a check mark here if English language Translation is attached)

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PROSPECTUS(1007)

Applicant/Assignee Through 10/09/2002, Case 091-029

US Patent & Trademark Office, U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449A/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>		Application Number	09/945500
		Filing Date	August 30, 2001
		First Named Inventor	Forbes, Leonard
		Group Art Unit	2818
		Examiner Name	Pham, Ly
Attorney Docket No: 1303.029US1			

Sheet 3 of 3

OTHER DOCUMENTS – NON PATENT LITERATURE DOCUMENTS		
Examiner Initials*	Cite No*	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
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		KWO, J., "Properties of high k gate dielectrics Gd2O3 and Y2O3 for Si", <u>Journal of Applied Physics</u> , 89(7), (2001), pp. 3920-3927
		MA, Y., "Zirconium Oxide Based Gate Dielectrics with equivalents Oxide Thickness of LEss Than 1.0 nm and Performance of Submicron MOSFET using a Nitride Gate Replacement Process", <u>IEDM - Technical Digest</u> , (1999), pp. 149-152
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		MULLER, H., "Electrical and Optical Properties of Sputtered In2O3 Films", <u>Physica Status Solidi</u> , 27(2), (1968), pp.723-731
		QI, W., "MOSCAP and MOSFET characteristics using ZrO2 gate dielectric deposited directly on Si", <u>IEDM - Technical Digest</u> , (1999), pp. 145-148
		ROBERTSON, J., "Band offsets of wide-band-gap oxides and implications for future electronic devices", <u>Journal Vac. Sci. Technol. B</u> , 18(3), (2000), pp. 1785-1791
		ROBERTSON, J., et al., "Schottky Barrier height of Tantalum oxide, barium strontium titanate, lead titanate, and strontium bismuth tantalate", <u>Applied Physics Letters</u> , vol. 74, no. 8, (02/22/1999), pp. 1168-1170
		SWALIN, R., "Equilibrium between Phases of Variable Composition", <u>Thermodynamics of Solids</u> , 2nd Edition, (1972), pp. 165-180
↓		YAN, J., et al., "Structural and electrical characterization of TiO2 grown from titanium tetrakis-isopropoxide (TTIP) and TTIP/H2O ambients", <u>Journal Vac. Sci. Technol. B</u> , 14(3), (1996), pp. 1706-1711

EXAMINER

DATE CONSIDERED

10/03/2002

Examiner Disclosure Statement Form (PTO-1449)
- EXAMINER: Initial if document considered, whether or not citation is in conformance with MPEP 600. Date this through citation if not in conformance and not considered. Include copy of this form with next communication.
- Applicant: Initial if document considered, whether or not citation is in conformance with MPEP 600. Date this through citation if not in conformance and not considered. Include copy of this form with next communication.
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Approved for use through 10/31/2005 under the
U.S. Patent and Trademark Office's Interim Rule of Practice
for Patent Applications. Use of this form is not mandatory.

Supplemental for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <small>(Use as many sheets as necessary)</small>		Complete / Known Application Number 09/945500 Filing Date August 30, 2001 First Named Inventor Forbes, Leonard Group Art Unit 2818 Examiner Name Pham, Ly				
		Attorney Docket No: 1303.029US1				
Sheet 1 of 2						

US PATENT DOCUMENTS						
Examiner Initials *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	Filing Date if Appropriate
LP	US-2003/0042527	03/06/2003	Forbes, Leonard , et al.	257	315	08/30/2001
	US-2003/0042632	03/06/2003	Forbes, Leonard	257	316	08/30/2001
	US-2003/0043622	03/06/2003	Forbes, Leondard	365	185.05	08/30/2001
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	US-2003/0043632	03/06/2003	Forbes, Leonard	365	185.28	08/30/2001
	US-2003/0043633	03/06/2003	Forbes, Leonard , et al.	365	185.28	12/20/2001
	US-2003/0043637	03/06/2003	Forbes, Leonard , et al.	365	185.33	08/30/2001
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	US-2004/0004247	01/08/2004	Forbes, Leonard , et al.	257	324	07/08/2002
	US-2004/0004859	01/08/2004	Forbes, Leonard , et al.	365	185.05	07/08/2002
	US-3,978,577	09/07/1976	Bhattacharyya, Arup , et al.	29	571	06/30/1976
	US-4,449,205	05/15/1984	Hoffman, Charles R.	365	182	02/19/1982
	US-4,495,219	01/22/1985	Kato, Takashi , et al.	427	82	10/08/1982
	US-4,717,943	01/05/1988	Wolf, Hans P. , et al.	357	23.5	07/16/1986
	US-4,794,565	12/27/1988	Wu, Albert T. , et al.	365	185	09/15/1986
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	US-5,445,984	08/29/1995	Gary, Hong , et al.	437	43	11/28/1994
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	US-5,510,278	04/23/1996	Bich-Yen, Nguyen , et al.	437	40	09/06/1994
	US-5,617,351	04/01/1997	Bertin, Claude L. , et al.	365	185.05	06/05/1995
	US-5,646,430	07/08/1997	Kaya, Cetin , et al.	257	322	08/28/1995
▼	US-5,952,692	09/14/1999	Nakazato, Kazuo , et al.	257	321	10/28/1997

EXAMINER *Pham, Ly*DATE CONSIDERED *10/03/2002*

Information Disclosure Statement Form (PTO-1440)

*EXAMINER: Initials or reference characters, whether or not citations in conformance with MPEP 606, Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant. Applicant's unique citation designator number (if present) is placed in a checkmark here if English language translation is attached.

COPY

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US Patent & Trademark Office, U.S. DEPARTMENT OF COMMERCE
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		Filing Date	August 30, 2001			
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		Group Art Unit	2818			
		Examiner Name	Pham, Ly			
		Attorney Docket No: 1303.029US1				
Sheet 2 of 2						

LP	US-6,101,131	08/08/2000	Chang, Ming-Bing	365	185.33	04/22/1999
	US-6,127,227	10/03/2000	Lin, Chrong J., et al.	438	261	01/25/1999
	US-6,169,306	01/02/2001	Gardner, Mark I., et al.	257	310	07/27/1998
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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Foreign Document No.	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	T ²

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
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EXAMINER

DATE CONSIDERED

10/03/2007

Supplementary Disclosure Statement Form (PTO-1449)

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